

## Controller

## Diskette

Supports up to two drives in any of four formats: 5 $\frac{1}{4}$ -inch, high-density, 1.2MB; 5 $\frac{1}{4}$ -inch, double-density, 360KB; 3 $\frac{1}{2}$ -inch, high-density, 1.44MB; or 3 $\frac{1}{2}$ -inch, double-density, 720KB; controller on main system board

## Hard disk

Supports up to two drives; **embedded controller; interface on** main system board

## Interface

## Monitor

VGA **adapter** with 1 MB of video **memory** built into main **system** board; **non-interlaced mode only**; supports up to 800 x 600 a 1024 x 768 pixels in 16-colors or up to 640 x 480 pixels in 256-colors; multi-frequency monitor **required** for resolutions over 640 x 480

15-pin, D-shell **connector**

## s a i d

RS-232C, programmable, asynchronous; 9-pin, D-shell **connector**

## Parallel

Standard 8-bit parallel, mono-directional; 25-pin, D-shell **connector**

## Auxiliary

Mini DIN, 6-pin **connector** for PS/2 compatible **mouse** or other &vice

## Keyboard

Mini DIN, 6-pin **connector** for PS/2 compatible **keyboard**

## Option Slots

**Four standard** input/output expansion **slots** (three 16-bit ISA compatible and one 8-bit ISA compatible); 8 MHz **bus** speed

## Speaker

Internal; **operation** controllable by **software**

## Power Supply

## Type

140W, fan-cooled, automatic input voltage **sensing**

## Input ranges

98 m 132 VAC and 195 m 264 VAC

## Maximum outputs

+5 VDC at 18 Amps, +12 VDC at 4.2 Amps

-12 VDC at 03 Amps, -5 VDC at 03 Amps

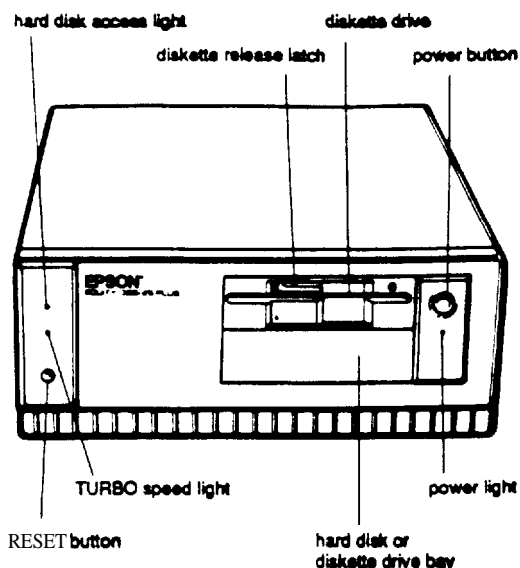
+12 VDC at 6 Amps, peak (10 seconds)

## Mass Storage

Up to **three** half-height *drive maximum* (one vertical mount and **two** horizontal **mounts**) configurable using any of the following **drive types**:

## Diskette drives

5 $\frac{1}{4}$ -inch diskette drive, 1.2MB (high-density) storage capacity



## Computer Specifications

## CPU and Memory

32-bit CPU	80386 <b>microprocessor</b> , 25 MHz system clock speed, 25 MHz or simulated 8 MHz <b>processor</b> speed, selectable through software or keyboard command
	0 wait state memory access speed at 25 MHz
System memory	2MB RAM <b>standard</b> on SIMMs; base memory of <b>either</b> 256KB, 512KB, or 640KB, <b>selectable</b> through jumpers
	Memory expandable using 256KB or 1MB SIMMs up to 16MB (maximum); SIMMs must be 70ns access speed
ROM	128KB (includes system BIOS and VGA BIOS)
Shadow RAM	0 wait state <b>access</b> speed; automatically <b>copies</b> both ROM BIOS and video ROM into RAM
Mach coprocessor	80387 (25 MHz) or Weitek 3167 (25 MHz) support; both may be used when a Weitek dual coprocessor adapter is installed to provide an additional socket (optional)
Clock/calendar	Real-time clock, calendar, and 50-byte CMOS RAM for configuration; battery backup
Cache controller	82385 (25MHz) standard
Cache RAM	32KB high-speed static RAM

# EQUITY 386/25 PLUS

3 1/2-inch diskette drive, 1.44MB  
(high-density) storage capacity

5 1/4-inch diskette drive, 360KB  
(double-density) storage capacity

3 1/2-inch diskette drive, 720KB  
(double-density) storage capacity

**Hard disk drives** 3 1/2-inch form factor hard disk drive(s);  
up to half-height size; first drive mounted  
vertically, second mounted horizontally

## Keyboard

Detachable, two position. 101 sculpted  
keys

**Layout** 58-key QWERTY main keyboard;  
17-key numeric&or pad; 10 cursor keys;  
additional 4-key cursor pad; 16 function  
keys (user-definable)

**Function** Four levels (normal, shift, control,  
alternate); user-definable

## Environmental Requirements

Condition	Operating range	Non-operating range	Storage range
Temperature	41° to 95° F (5° to 35° C)	-4° to 140° F (-20 to 60° C)	-40° to 140° F (-40° to 60° C)
Humidity (non- condensing)	20% to 80%	10% to 90%	5% to 95%
Altitude	-330 to 9900 ft (-100 to 3000 m)	-330 to 11880 ft (-100 to 3600 m)	-330 to 39600 ft (-100 to 12000 m)
Maximum wet bulb	68° F (20° C)	104° F (40° C)	134° F (57° C)

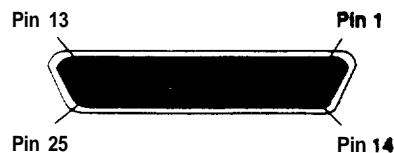
## Physical Characteristics

**Width** 15 inches (374 mm)  
**Depth** 16.75 inches (419 mm)  
**Height** 6 inches (151 mm)

**Weight** Single diskette drive model:  
(without keyboard) 20.75 lb (9.4 kg)

## Connector Pin Assignments

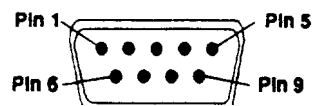
### Parallel Port Connector



Pin	Signal	Pin	Signal
1	STROBE	10	ACK*
2	DATA0	11	BUSY
3	DATA1	12	PE
4	DATA2	13	SELECT
5	DATA3	14	AUTO*
6	DATA4	15	ERROR*
7	DATA5	16	INIT*
8	DATA6	17	SELECTIN*
9	DATA 7	18	SIGNAL GND

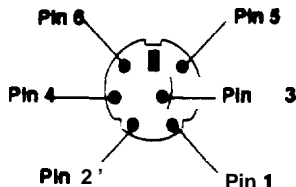
Pin	Signal
19	SIGNAL GND
20	SIGNAL GND
21	SIGNAL GND
22	SIGNAL GND
23	SIGNAL GND
24	SIGNAL GND
25	SIGNAL GND

### Serial Port Connector



Pin	Signal	Pin	Signal
1	Data Carrier Detect	6	Data Set Ready
2	Receive Data	7	Request To Send
3	Transmit Data	8	Clear To Send
4	Data Terminal Ready	9	Ring Indicator
5	not used		

## Keyboard and Mouse Connector



Although the keyboard and mouse connectors are physically identical, they cannot be used interchangeably.

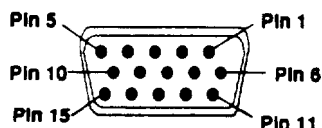
### Keyboard Connector

	Signal
1	Keyboard Data
2	Reserved
3	Ground
4	+5 VDC
5	Keyboard Clock
6	Reserved

### Mouse Connector

	Signal
1	Mouse Data
2	Reserved
3	Ground
4	+5 VDC (fused)
5	Mouse Clock
6	Reserved

### VGA Connector



Pin	Signal	Pin	Signal
1	Red video	9	Key
2	Green Video	10	Sync Return
3	Blue video	11	Reserved
4	unused	12	Reserved
5	Ground	13	Horizontal Sync
6	Red Return	14	Vertical Sync
7	Green Return	15	Unused
8	Blue Return		

## I/O Port Addresses

Address	F	-
000-01F		DMA Controller 1
020-021		Interrupt Controller 1
040-05F		Timer/Counter
060-06F		Keyboard Controller (8042)
070-07F		Real-Time Clock, NMI Mask Register
080-09F		DMA Page Register, MM Port
0A0-0BF		Interrupt Controller 2 (8259A-compatible)
0C0-0DF		DMA Controller 2 (8237A-5-compatible)
0F0		Clear NPX Busy (80387)
0F1		Reset NPX (80387)
0F8-0FF		NPX (80387)
170-178		Hard Disk Controller Secondary
1B0-1B5		Configuration Registers
1BF		Configuration Register Unlock Port 1
1F0-1F7		Hard Disk Controller Primary
200-207		Game I/O
278-27F		Printer Port 2 (27B and 27F are unused)
27B		Configuration Register Unlock Port
2F8-2FF		Serial Port 2
300-31F		Prototype Card
370-377		Floppy Disk Drive Controller Secondary
378-37F		Parallel Printer Port 1 (37B and 37F are unused)
378		Configuration Register Unlock Port 2
380-38F		SDLC, Bisynchronous Communication 2
3A0-3AF		Bisynchronous Communication 1
3B0-3BF		Monochrome Display and Printer Adapter
3D0-3DF		Color/Graphics Monitor Adapter
3F0-3F7		FDD Controller Primary
3F8-3FF		Serial Port 1

## Hardware Interrupt

CTLR1	CTLR2	FUNCTION
IRQ0		Timer Output 0
IRQ1		Keyboard
IRQ2		Interrupt from Controller 2
IRQ3		Serial port 2
IRQ4		Serial port 1
IRQ5		Parallel port 2
IRQ6		Floppy disk interrupt
IRQ7		Parallel port 1
	IRQ8	RTC interrupt
	IRQ9	Software redirected to IRQ2
	IRQ10	Reserved
	IRQ11	Reserved
	IRQ12	Mouse, pointing device
	IRQ13	Coprocessor
	IRQ14	Hard disk controller
	IRQ15	Reserved

# EQUITY 386/25 PLUS

## Jumper Settings

There are jumpers on the Equity 386/25 PLUS main board (see illustration for location). These jumpers set options for memory, EPROM size, monitor type, etc.

Jumper Number								Function Description
1	2	3	4	5	6	7	8	
A								Enables early I/O ready
B*								Sets normal I/O ready
A A*								640KB Base Memory
A B								512KB Base Memory
B B								256KB Base Memory
B B B B B								1 MB Total Memory
B A B B B*								2MB Total Memory
B A B B A								3MB Total Memory
B A B A A								4MB Total Memory (a)
A B B B B								4MB Total Memory (b)
A B B A B								6MB Total Memory
A A B B B								8MB Total Memory
A A B B A								9MB Total Memory
B A A A A								10MB Total Memory (c)
A A B A A								10MB Total Memory (d)
A A A B A								12MB Total Memory
A A A A A								16MB Total Memory

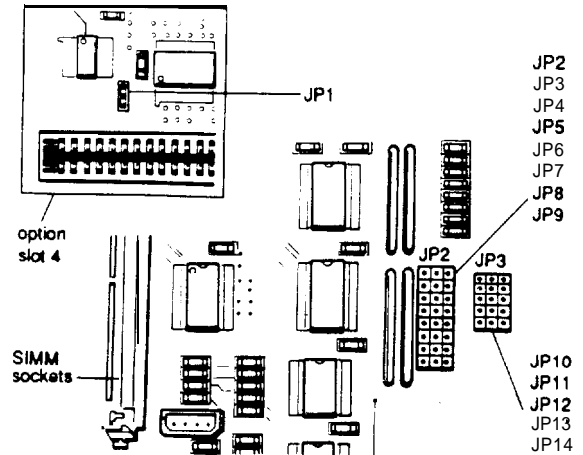
### \* Factory Setting

- (a) configured using 256KB SIMMs in all banks
- (b) configured using four 1 MB SIMMs in bank 0
- (c) configured using eight 256KB SIMMs in banks 0 and 1 and eight 1 MB SIMMs in banks 2 and 3
- (d) configured using eight 1 MB SIMMs in banks 0 and 1 and eight 256KB SIMMs in banks 2 and 3

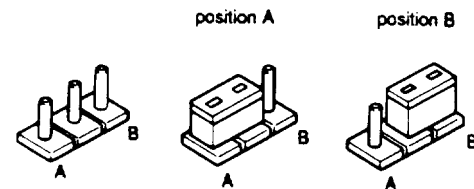
Jumper Number					Function Description
10	11	12	13	14	
A*					Enables built-in mouse port
B					Disables built-in mouse port
A					Enables mouse port on an option
B*					Disables mouse port on an option
A*					Color monitor installed
B					Monochrome monitor installed
A					Disables power-on password
B*					Enables power-on password
A*					Enables built-in VGA adapter
B					Disables built-in VGA adapter

### Factory Settings

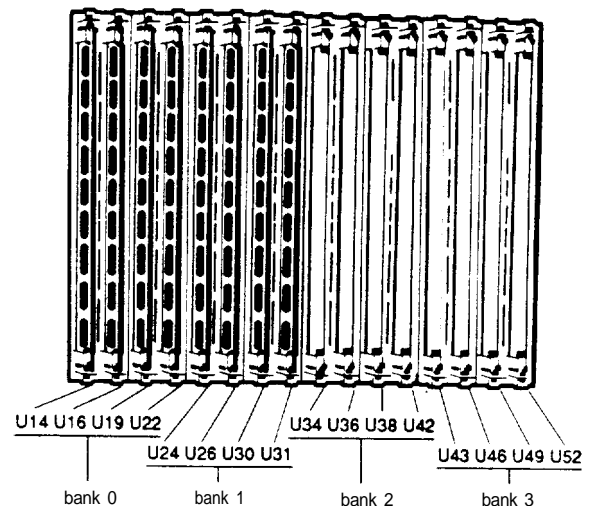
**Note:** Jumper J9 is not used.



A jumper's setting is determined by where the jumper is placed on the pins. The jumper either connects pin A and the middle pin (position A) or connects pin B and the middle pin (position B), as shown below.



## SIMM Installation



## SIMM configuration for the the 386/25 PLUS

Bank 0	Bank 1	Bank 2	Bank 3	Total memory
K K K K	-----	-----	-----	1MB
K K K K	K K K K	-----	-----	2MB
K K K K	K K K K	K K K K	-----	3MB
K K K K	K K K K	K K K K	K K K K	4MB or 4MB
M M M M	-----	-----	-----	6MB
K K K K	K K K K	M M M M	-----	8MB
M M M M	M M M M	-----	-----	9MB
M M M M	M M M M	K K K K	-----	10MB or 10MB
K K K K	K K K K	M M M M	M M M M	12MB
M M M M	M M M M	M M M M	-----	16MB

K = 256KB SIMM installed

M = 1MB SIMM installed

-- = No SIMM installed

## DMA Channels

Channel	Function
0 (CTRL 1)	Spare
1 (CTRL 1)	SDLC
2 (CTRL 1)	Floppy disk drive controller
3 (CTRL 1)	Spare
4 (CTRL 2)	Cascade for CTRL 1
5 (CTRL 2)	Spare
6 (CTRL 2)	Spare
7 (CTRL 2)	Spare

## Hard Disk Drive Type

Type No.	Type	Cylinders	Heads	Sectors	Precomp	Leading zone	MB	Drive name
00								No fixed disk (Used by ESD)
01	ST-506	306	4	17	126	306	10.2	(1)
02	ST-506	615	4	17	300	615	20.4	
03	ST-506	615	8	17	300	615	30.6	
04	ST-506	940	6	17	512	646	42.4	
06	ST-506	940	6	17	512	940	46.8	
08	ST-506	615	4	17		615	20.4	
W	ST-506	462	6	17	256	511	30.7	
a	ST-506	733	5	17		733	9.4	
09	ST-506	900	15	17		m1	12.1	
10	ST-506	820	3	17		820	8.4	
11	ST-506	856	5	17		856	36.5	
12	ST-506	856	7	17		856	a 7	
13	ST-506	306	6	17	128	319	20.3	
14	ST-506	7%	7	17		733	42.8	
15								--reserved--
16	ST-506	612	4	17	8	663	20.3	
17	ST-506	977	5	17	300	977	a 5	CDC 94205-51 (2)
18	ST-506	977	7	17		977	56.8	
16	ST-506	1024	7	17	512	1023	58.5	
20	ST-506	730	5	17	300	7%	30.4	Toshiba MK-133FA
21	ST-506	7%	7	17	300	732	42.6	Toshiba MK-134FA
22	ST-506	733	5	17	300	733	30.4	
23	ST-506	306	4	17	8	306	10.2	
24	ST-506	612	4	17	305	663	8.4	
25	ST-506	306	4	17		340	10.2	
26	ST-506	612	4	17		670	20.4	
27	ST-506	666	7	17	300	732	40.6	
28	ST-506	676	6	17	488	677	40.5	
29	ST-506	306	4	17	0	348	10.2	
30	ST-506	611	4	17	308	663	20.4	
31	ST-506	732	7	17	300	732	42.6	
32	ST-506	1023	5	17		1023	42.5	
33-40								none
41	ESDI	1022	5	34		1022	84.8	CDC 94216-105 (3)
42	ESDI	1022	5	36		1022	88.8	CDC 94216-106
43	ST-506	1024	6	17	512	1023	88.0	(4)
44	ESDI	828	18	34		828	137.5	Toshiba MK-154F
46	ST-506	1024	5	17	512	1023	42.5	(5)
46	ST-506	615	6	17	128	618	40.8	NEC DS147H
47								none
46	ST-506	820	6	17		820	a 6	Sangate ST251
4	ST-506	830	18	17		830	88.9	Toshiba MK58FB
50	ST-506	1024	9	17		1023	76.5	Sangate ST4086
51	ESDI	828	7	34		828	98.2	Toshiba MK-154F
52	ESDI	w	6	36		w	85.0	CDC 94186-101
53	ESDI	w	7	36		w	118.1	CDC 94186-141
54	ESDI	WV	6	36		WV	153.1	CDC 94186-182
56	ESDI	1022	7	34		1022	118.8	Micropolite 1364A
56	ESDI	w	5	34		w	a 3	CDC 94186-101 (3)
57	ESDI	w	7	34		w	112.4	CDC 94186-141 (3)
58	ESDI	w	6	34		w	144.5	CDC 94186-182 (3)
58	AT	980	5	17		979	40.7	Conner CP-344
60	AT	171	6	33		m	100	Conner CP-3104
61	AT	746	4	28		744	40.5	Milj 8051A native mo
Q	AT	985	5	17		Auto	40	Quantum 40AT (6)
Q	AT	985	10	11		Auto	80	Quantum pro 80AT (6)
64-255								none

## Notes:

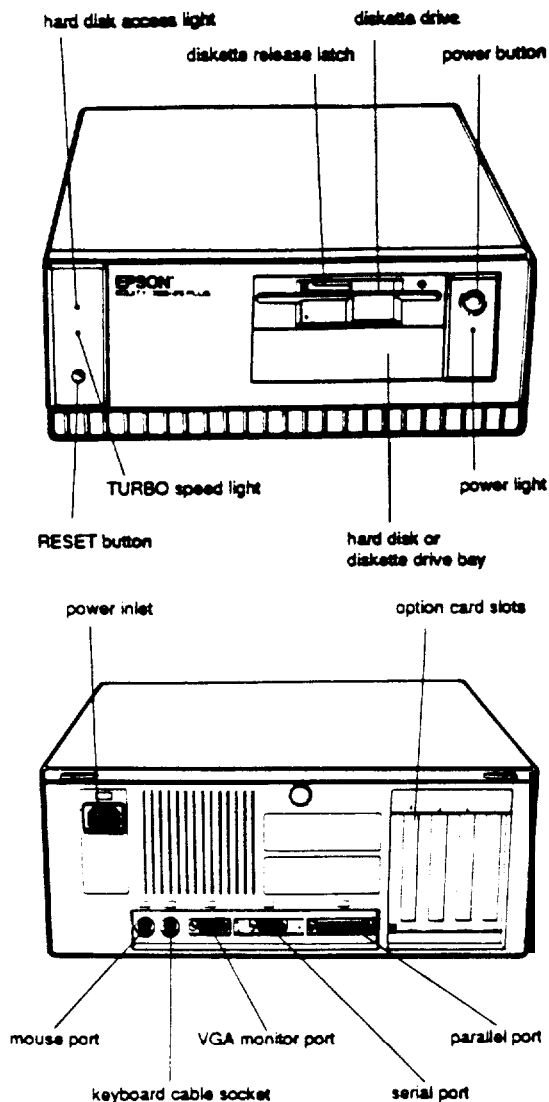
1. Microscrite 8425F, Sangate ST125
2. Conner CP-3044 or Microscrite 8051A can be used as type 17
3. For Western Digital ESDI HDC or Drive Master default setting
4. Micropolite 1325, Altek 3085, Laserstar Laser4, Master XT1085, Newbury NDR1085
5. Micropolite 1329A, Microscrite 3085, Microscience H91080, Sangate ST4085
6. The leading zone value is 884

The factory-installed hard disk drive type for the Equity 386/25 PLUS is number 00 (100MB).

## Installation/Support Tips

### Power

The Equity 386/25 PLUS has a power supply that is switchable between 115 V, for U.S. and Canadian use, and 230 V, for use in other countries. There is no manual switch, as the power supply is autosensing.



### Mouse and Keyboard

When attaching the mouse and keyboard connectors, be careful to attach them to the proper connectors. Though they are physically identical, they are not interchangeable.

### Installing Floppy Disk Drives

When installing a floppy disk drive as drive B, remember to set the drive select jumper to the second position and attach the pass-through connector on the floppy drive controller cable to the drive, not the and connector.

If the drive does not function normally, make sure that the drive type has been correctly selected in SETUP. Also check that any special drivers that may be necessary have been installed correctly.

If you have installed two floppy disk drives, remember that the Equity 386/25 PLUS will boot from drive B when drive A has no disk inserted and a disk is placed in drive B.

### Installing Hard Disk Drives

It is recommended that a 16-bit AT-type hard disk controller be used in the Equity 386/25 PLUS, if you are installing a drive that cannot make use of the internal hard disk controller. Also remember to disable the onboard hard disk controller when installing such a drive.

If you are having difficulty in formatting the hard disk drive, try starting over with the Unconditional Format option in diagnostics.

### Setup

When installing a hard disk drive, be sure to consult the drive type tables for the drive type which fits the drive you are installing. If there is no match for your drive, use the User Defined drive option.

### Adding Memory Modules

- The total amount of memory must be one of the following: 1 MB, 2MB, 3MB, 4MB, 6MB, 8MB, 9MB, 10MB, 12MB, or 16MB.

## Software Problems

When installing a copy-protected software package on the Equity 386/25 PLUS, first try the installation at 25 MHz. If this does not work properly, try switching to 8 MHz for the installation. If you are still unable to load the program at 25 MHz, try loading at 8 MHz and then switching to 25 MHz.

When using a software package that uses a keydisk as its copy-protection method, try loading it at 25 MHz. If this does not work, enable the Auto Speed option in SETUP.

## Power-on Password

Make sure that you do not forget the Power-on Password should you set one up. If you do, it will be necessary to disable it by moving jumper J13 on the main circuit board to the A position.

<b>Information Reference List</b>
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### Engineering Change Notices

None.

### Technical Information Bulletins

None.

### Product Support Bulletins

None.

### Related Documentation

TM-EQ38625+		Equity 386/25 PLUS Service Manual
M-PL-EQ38625+		Equity 386/25 PLUS Parts List
Y707991001		Equity 386/25 PLUS User's Guide